



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/585,747

07/12/2006

Tim Fingscheidt

2004P00324

1497

24131 7590 08/17/2009
LERNER GREENBERG STEMER LLP
P O BOX 2480
HOLLYWOOD, FL 33022-2480

EXAMINER

HAN, QI

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

08/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,747	Applicant(s) FINGSCHEIDT ET AL.	
	Examiner QI HAN	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/12/2006 & 1/29/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2626

DETAILED ACTION

U.S.C. National Stage Application

1. Acknowledgement is made of the indication that the present application is filed under 35 U.S.C. 371, of the indication that the required form PCT/DO/ED/903 is present, and of the use of transmittal form PCT/DO/EO/1390. Thus, the present application is being treated as a filing under 35 U.S.C. 371.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The references listed in the Information Disclosure Statement submitted on 07/12/2006 and 01/29/2009 have been considered by the examiner (see attached PTO-1449).

Response to Amendment

4. This communication is responsive to the applicant's Preliminary Amendment filed on 07/12/2006. The applicant(s) cancelled claims 1-15 and added new claims 16-35 (see the amendment: pages 4-7).

Art Unit: 2626

Specification and Drawing

5. The disclosure is objected to because of the following:

a. On page 10, lines 7-24 and Fig.5, the referenced symbol “S’ ” is not shown in the corresponding drawing (Fig. 5). Appropriate correction is required.

b. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed steps of “acquiring...; Subjecting...; and normalizing...” (for independent claims 16 and 27) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 16, 24, 26-27 and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by MENENDEZ-PIDALE et al. (US 6,173,258 B1) hereinafter referenced as MENENDEZ.

As per **claim 16**, MENENDEZ discloses ‘method for reduction noise distortion in a speech recognition system’(title)(also Fig.4), comprising:

a) acquiring the noise-affected speech (noisy speech) signal (Figs. 1a and 4-5, referenced signals ‘112’ and ‘224’; col. 1, lines 46-59);

b) subjecting the noise-affected speech signal to noise reduction for generating a noise-reduced speech signal ;(Fig. 5 and col. 4, line 66 to col.5, line 49, ‘noise suppressor 518’ to ‘generate noise-suppressed (noise reduction) speech data (signal)’; and

c) normalizing the noise-reduced speech signal with a normalization factor to a required signal level for generating a noise-reduced, normalized speech signal (Fig. 5 and col.5, lines 37-49, ‘normalizer 546 performs an effective normalization process...’; also see Figs.7-9 and col. 85, line 55 to col. 10, line 55, wherein mean value, left/right variances, ‘forgetting factor β ’, and/or combination thereof in the formulas for calculating ‘normalization values’ are read on normalization factor in a broad sense).

As per **claim 24** (depending on claim 16), MENENDEZ in view of Iso-Sipila further discloses executing preprocessing and a feature compression of feature vectors describing a speech signal (MENENDEZ: Fig. 5, any operations in the ‘feature extractor’ can be broadly read

Art Unit: 2626

on preprocessing, 'logarithmic compressor' for feature compression, 'delta' and 'delta-delta' features are of compressed feature vectors).

As per **claim 26** (depending on claim 24), the rejection is based on the same reason described for claim 24, because it also reads on the limitation(s) of claim 26.

As per **claim 27**, the rejection is based on the same reason described for claim 16, because it also reads on the limitation(s) of claim 27.

As per **claim 30**, it recites an electrical device (as an independent claim). The rejection is based on the same reason described for claim 16, because it also reads on the limitation(s) of claim 30, wherein computer system' includes 'a sound sensor 212 (microphone)' and 'CPU 228' disclosed by MENENDEZ (Fig. 5, col. 3, lines 52-56 and col.5, line 21) additionally reads on the claimed structural elements

As per **claim 31** (depending on claim 30), the rejection is based on the same reason described for claim 30, because it also reads on the limitation(s) of claim 31.

As per **claim 32** (depending on claim 30), the rejection is based on the same reason described for claim 30, because it also reads on the limitation(s) of claim 32.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2626

7. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over MENENDEZ in view of SHOZAKAI et al. (US 7,440,891 B1) hereinafter referenced as SHOZAKAI.

As per **claim 17** (depending on claim 16), MENENDEZ does not expressly disclose “defining a value of the normalization factor in dependence on a **speech activity**”. However, the feature is well known in the art as evidenced by SHOZAKAI who discloses ‘voice speech processing method and apparatus for improving speech quality and speech recognition performance’ (title), comprising ‘combining the NLMS-VAD (voice/speech activity detection) method’ and the CCS (Continuous Spectral Subtraction) method’ that provide certain noise suppression (removing) functionality, and ‘E-CMN (exact cepstrum mean normalization)’ including ‘normalization step’ for ‘speech recognition’, which defines a value (read on normalization factor) based on speech or non-speech frames (speech activity) (Fig. 12, col. 12, lines 20-59, and col. 15, line 10 to col. 16, line 36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify MENENDEZ by providing a speech suppression/reduction mechanism (such as NLMS-VAD and CCS) and then normalizing processed speech data with a value based on voice/speech activity (such as speech or non-speech frames), as taught by SHOZAKAI, for the purpose (motivation) of improving speech quality and speech recognition performance (SHOZAKAI: title and col. 1, lines 8-16).

In addition, it is noted that MENENDEZ discloses normalization process using the mean, variances, and/or ‘forgetting factor β ’, which reflects the different speech frames (sections) represented by features (or feature vectors), so that, based on broadest reasonable interpretation of the claimed “speech activity” as “different speech sections” in light of the specification (page

Art Unit: 2626

8, lines 25-32), the combined teachings of MENENDEZ alone also satisfy the claimed limitations for the rejection.

As per **claim 18** (depending on claim 17), the rejection is based on the same reason described for claim 17, because it also reads on the limitation(s) of claim 18.

8. Claims 19-23, 25, 28-29 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over MENENDEZ in view of Iso-Sipila (US 7,035,797 B1).

As per **claim 19** (depending on claim 16), even though MENENDEZ discloses describing the noise-reduced, normalized speech [command] by one or more feature vectors (Fig. 5, referenced speech data '416(a)' to '416(c)'), MENENDEZ does not expressly disclose these speech data being **command**. However, the feature is well known in the art as evidenced by Iso-Sipila who discloses 'data-driven filtering of cepstral time trajectories of robust speech recognition' (title), including 'feature vector normalization' (abstract), comprising 'verbal command (speech command)' for the related speech process and recognition (col. 1, lines 15-54), and 'recognizes the voice (speech) commands or the spoken messages' (col. 10, lines 29-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify MENENDEZ by providing speech recognition method/system to recognize speech including using voice (verbal or speech) commands, as taught by Iso-Sipila, for the purpose (motivation) of improving the efficiency of speech recognition in a noise environment for different applications (not only for spoken message but also for voice command) (Iso-Sipila: col. 3, lines 51-52 and col. 1, lines 14-33).

Art Unit: 2626

As per **claim 20** (depending on claim 19), MENENDEZ in view of Iso-Sipila further discloses generating the one or more feature vectors to describe the noise-reduced, normalized speech command (Fig. 5, referenced speech data '416(a)' to '416(c)'; Iso-Sipila: col. 10, lines 29-34, 'the signal 190, indicative of normalized feature vectors' that describes the related 'voice command').

As per **claim 21** (depending on claim 16), MENENDEZ does not expressly disclose **transmitting** a signal describing the feature vector or the feature vectors. However, the feature is well known in the art as evidenced by Iso-Sipila who discloses 'data-driven filtering of cepstral time trajectories of robust speech recognition' (title), including 'feature vector normalization' (abstract), comprising 'distributed-speech recognition (DSR)' in which 'the speech data (signal)' describing 'normalized feature vectors 224' in 'DSR front end 310' having 'transceiver unit 16' is 'conveyed (transmitted or communicated) to the server 320' for 'voice (speech) recognition' (Figs. 4 and 6 and col. 10, lines 13-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify MENENDEZ by providing DSR based speech recognition with transmitting related feature vector(s), as taught by Iso-Sipila, for the purpose (motivation) of improving the efficiency of speech recognition in a noise environment for different applications (not only for spoken message but also for voice command) (Iso-Sipila: col. 3, lines 51-52 and col. 1, lines 14-33).

As per **claim 22** (depending on claim 16), the rejection is based on the same reason described for claim 19, because it also reads on the limitation(s) of claim 22.

As per **claim 23** (depending on claim 22), the rejection is based on the same reason described for claim 21, because it also reads on the limitation(s) of claim 23.

Art Unit: 2626

As per **claim 25** (depending on claim 24), the rejection is based on the same reason described for claim 21, because it also covers the limitations of claim 25, wherein the processing steps/operations unto signal 160' (Iso-Sipila: Figs. 1a-1b, 4 and 6) include (so as read on) claimed feature compression, and the processing steps/operations from signal 160'' to signal 190 (Iso-Sipila: Figs. 1b and 6 and col. 10, lines 27-34) include (so read on) claimed preprocessing).

As per **claim 28** (depending on claim 27), the rejection is based on the same reason described for claim 19, because it also reads on the limitation(s) of claim 28, wherein when 'a potential user "trains" the recognizer' such as 'Hidden Markov Model (HMM) recognizer' disclosed by MENENDEZ (col. 1, lines 60-65 and col. 4, lines 54-56) necessarily or inherently includes creating acoustic model as claimed.

As per **claim 29** (depending on claim 28), the rejection is based on the same reason described for claim 28, because it also reads on the limitation(s) of claim 19.

As per **claim 33**, it recites a communication device (as an independent claim). The rejection is based on the same reason described for claims 16 (or 30) and 21, because it also reads on the limitation(s) of claim 33.

As per **claim 34** (depending on claim 33), the rejection is based on the same reason described for claim 21, because it also reads on the limitation(s) of claim 34, wherein device 310 disclosed by Iso-Sipila (Fig. 6) is read on the claimed mobile station.

As per **claim 35**, it recites a communication system (as an independent claim). The rejection is based on the same reason described for claims 16 (or 30) and 21, because it also reads on the limitation(s) of claim 33, wherein the communication device 310, server 320 and network 300 disclosed by Iso-Sipila (Fig. 6) is read on the claimed structural elements.

Art Unit: 2626

Conclusion

9. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to: 571-273-8300, (for formal communications intended for entry)

Or: 571-273-8300, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

If no Mail Stop is indicated below, the line beginning Mail Stop should be omitted from the address.

Effective January 14, 2005, except correspondence for Maintenance Fee payments, Deposit Account Replenishments (see 1.25(c)(4)), and Licensing and Review (see 37 CFR 5.1(c) and 5.2(c)), please address correspondence to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, etc.) as follows:

U.S. Patent and Trademark Office
Customer Window, Mail Stop _____
Randolph Building
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QI HAN whose telephone number is (571)272-7604. The examiner can normally be reached on M-TH:9:00-19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QH/qh
August 13, 2009
/Qi Han/
Primary Examiner, Art Unit 2626